2 Sheets-Sheet 1.

H. Chase

Truss.

No. 222. Patented June 10, 1837.

Fig. 1.

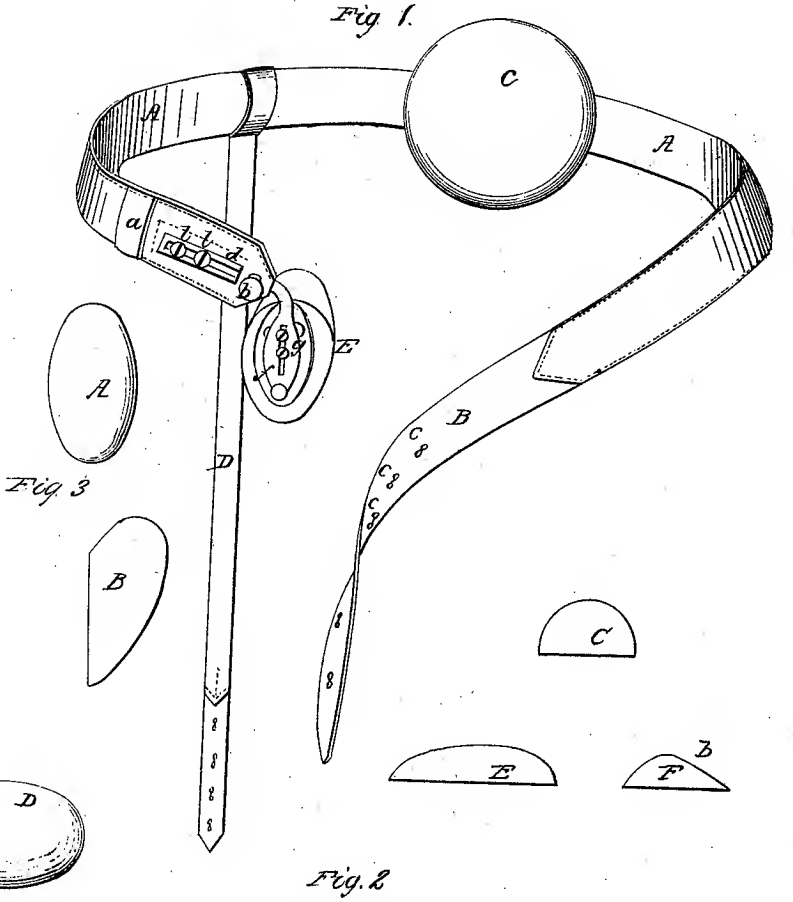

Fig. 3

Fig. 2

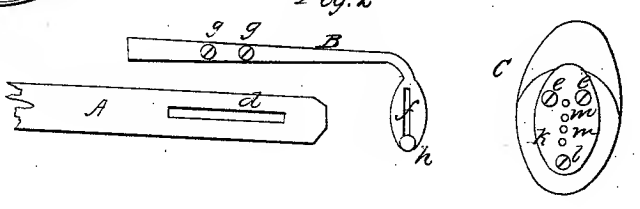

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Fig. 5.

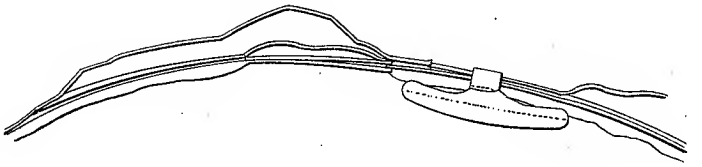


Fig. 4.

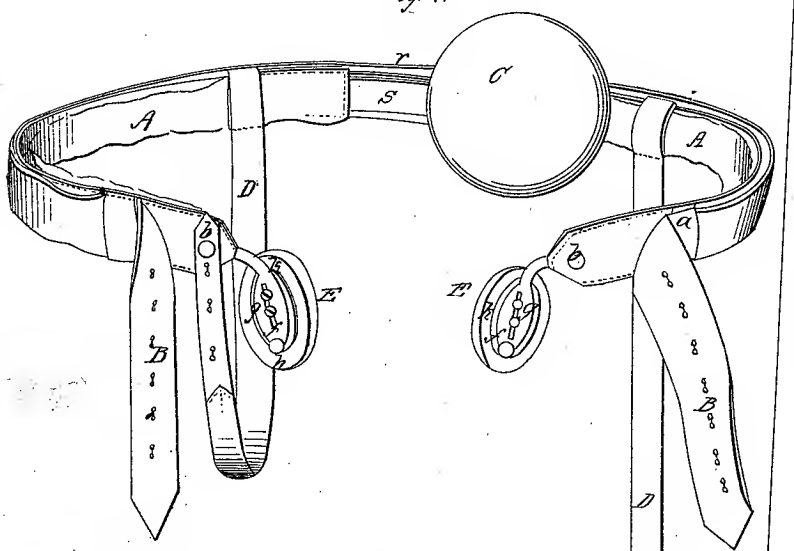


Fig. 7.

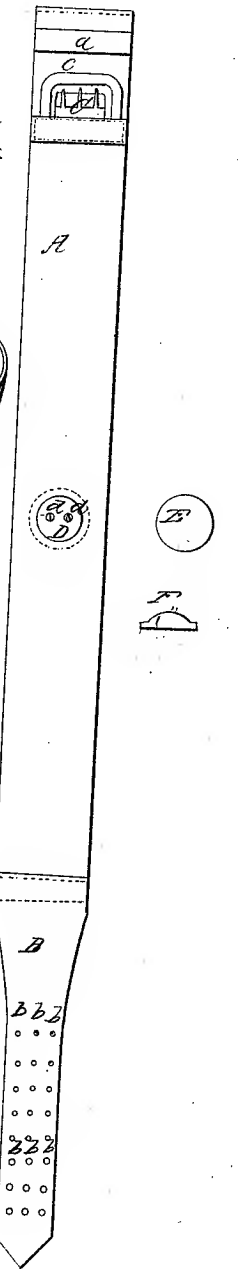
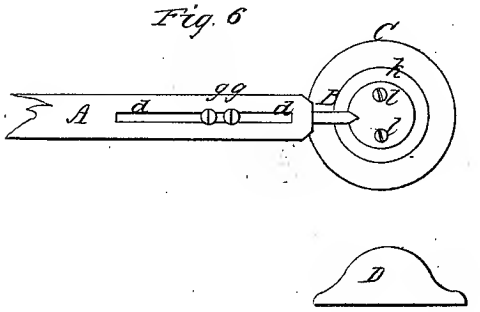


Fig. 6



UNITED STATES PATENT OFFICE.

HEBER CHASE, OF PHILADELPHIA, PENNSYLVANIA.

TRUSS FOR THE RETENTION AND RADICAL CURE OF HERNIA.

Specification of Letters Patent No. 222, dated June 10, 1837.

To all whom it may concern:

Be it known that I, HEBER CHASE, M. D., of the city of Philadelphia, State of Pennsylvania, have invented, constructed, made, and applied to use some new and useful instruments or improvements in trusses and have discovered the method of applying the same in the cure of every species of reducible hernia to which the human family is liable, and that the following is a full and exact description of the construction and operation of the said instruments and of the manner of applying the same as invented and discovered by me.

The apparatus consists of a variety of parts.—The first part of the apparatus is the inguinal truss, which consists of—

First. A spiral flat spring of steel, about one inch in width, and two lines in thickness, possessed of sufficient elasticity to prevent it from becoming altered in shape while in use; which spring is of sufficient length to surround the bones of the pelvis from within an inch or two of the internal abdominal ring on one side of the abdomen, nearly or quite to a point situated perpendicularly under the anterior, superior, spinous process of the osilium on the other side of the pelvis; the form of the said spring being adapted to the general form of the lateral and posterior parts of the pelvis, and those portions of the front of the abdomen over which it is intended to pass; the anterior portion of the said spring being curved downward to such a degree, that when the principal portion lies nearly or quite horizontally across the back of the patient, the anterior extremity shall be found within one or two inches of the internal abdominal ring, in a direction a little above and to the outside thereof; the said anterior portion of the spring being armed with a metallic button situated on the outside thereof.

Secondly. A spring-cover composed of leather, covering the whole length of the spring so as to protect the skin of the patient from the action of the spring, which spring-cover is provided with a sufficient number of loops of leather attached to its outer face, to fulfil certain purposes hereafter designated.

Thirdly. A pelvic strap of leather, continued from, or attached to the spring-cover, and sufficiently long to embrace the remaining portions of the circumference of the body which are not included by the spring and spring-cover, and to extend some inches beyond the extremity of the anterior portion of the spring; the said strap being provided with a longitudinal series of eyelet holes, by means of which, when the instrument is applied, it may be accommodated to the dimensions of the patient, by being secured to the metallic button on the anterior portion of the spring before mentioned, after which the end of the strap is passed through the loops of the spring-cover.

Fourthly. An elliptic plate or block-slide of iron, two inches in length and one in width, attached to the anterior extremity of the spring, by a neck of soft iron, one inch in length, riveted to the spring, and also continuous with the said block-slide, which elliptic plate is provided with a fenestrum three lines in width; running nearly the whole length along the greater diameter of the ellipse, and designed to permit the proper and permanent adjustment of the remaining parts of the instrument to be described hereafter; and it is also armed at its lower extremity with a metallic button or knob, for securing the perineal strap hereafter described, when such an attachment is deemed desirable.

Fifthly. An elliptic plate of brass or block-rider, provided with four or more tap-holes for the accommodation of the necessary screws for attaching the next portion of the apparatus to the block-rider, and the block-rider to the block-slide; this elliptical brass plate being secured to the block-slide by means of two broad-headed screws, which pass through the fenestrum of the latter, and when loosened, permit the block-rider to play freely beneath the block-slide, but when tightened, secure these parts of the apparatus firmly and immovably together.

Sixthly. An inguinal block, composed of wood, three inches in length and two in width, its base being flat and of an elliptic shape, its opposite surface convex, and its whole form resembling a longitudinal section of an ellipsoid considerably compressed, and having a much more rapid convexity on the lower half, than on the upper half of its convex surface, and presenting a slight tendency to form a longitudinal shoulder a little below its middle line, where the thick-

ness of the block is greatest; this most prominent portion of the block being intended to press upon the route of the inguinal canal, with the greater convexity of the block presenting toward Poupart's ligament, and its lesser convexity supporting the walls of the abdomen around the abdominal rings and the inguinal canal; in which position the block is secured, by being screwed to the block-rider by means of three screws, and its precise bearing regulated when the instrument is applied, by bending the soft iron neck and adjusting the screws of the block-slide, when the peculiar form of the patient requires such regulation to be made.

Seventhly. A back-pad of a circular form, composed of a thin metallic plate, one line in width and four inches in diameter, padded and covered with buckskin, intended to lessen the pressure of the instrument on the spine, and to give greater security to its position when applied; the said back-pad being rendered movable by means of a leather loop attached to its back, through which loop the strap and spring-cover are passed.

Eighthly. A perineal strap composed of leather, and padded; suspended on the posterior portion of the spring-cover by means of a loop at one of its extremities, and furnished with a longitudinal row of eyelet holes at the opposite end, to permit the surgeon to secure it to the button on the anterior part of the spring, or to that of the block-side, as circumstances may require.

The second part of the apparatus, is the ventro-inguinal truss—This instrument is in all respects similar to the inguinal truss just described, except in the form of the block, which is three and a half inches in length and two in width, and is designed to act upon the site of the orifice in the tendons, which in the ventro-inguinal variety of hernia, is always situated at the external ring. The block of this truss is also made of wood, but its general form is that of a strongly flattened ovoid, truncated on one side by a plane passing obliquely to all the three principal diameters of the block, and forming an elliptical flat surface on part of one side of the block, by which part it is attached to the block-rider. The block is so formed that the inferior part of its margin is accurately adapted to the form of the edge of the body of the pubic bone.

The third part of the apparatus, is the femoral truss—In this instrument, the anterior portion of the spring is furnished with a fenestrum two inches in length, and the block-side is not permanently fixed to the spring, but terminates in a long iron neck which is bent at a right angle about three quarters of an inch above the block-slide, and then extends within the spring-cover, and beneath the anterior end of the spring to the full extent of the fenestrum just mentioned. The last inch of this neck is made flat and broader than the other parts of it, and into this flattened portion enter two broad-headed screws, which pass through the fenestrum, and produce the same kind of articulation between the iron neck and the spring, that has been described as existing between the block-rider and the block-slide, in the description of the inguinal truss. The block-rider in this truss is not elliptic but oval, with the more obtuse end uppermost. The block of the femoral truss is made of wood, shaped very nearly like an elongated bird's egg, and truncated very obliquely by a plane passing from the greater extremity to a point of the superficies not far from the lesser end of the egg, so as to involve about two thirds of the length of the figure, leaving the lesser extremity prominent. This block is intended to be attached to the block-rider, with its prominent point uppermost, so that when the instrument is applied, this point is applied immediately beneath Poupart's ligament between the great vessels of the thigh, and the inner side of the thigh. In all other respects the femoral truss resembles the inguinal truss.

The fourth part of the apparatus, is the umbilical truss—The spring of this truss is of a spiral form, and sufficiently long to pass around about two-thirds of the circumference of the body. Its anterior extremity is not inclined downwards, but its curvature lies in the same plane throughout. Its iron neck is formed and attached to the spring in the same manner with that of the femoral truss, except that it is nearly straight throughout its entire length. This truss has no block-slide, but the corresponding part of the instrument is a simple circular disk of iron, which is secured permanently to the block-rider; by means of two button-headed screws, which also furnish fastenings for the strap. The block-rider is also a simple circular disk of brass, which is secured to the block by two small screws; the block is circular—flat upon one side, and on the other, adapted to the general form of the depression of the human umbilicus. The strap of this truss has a double longitudinal row of eyelet holes corresponding with the two button-headed screws before mentioned. The back-pad of this instrument is oblong, and has two parallel loops to receive the spring-cover, instead of a single one. No perineal strap is required for the umbilical truss. In all other respects the umbilical truss resembles the inguinal truss.

The fifth part of the apparatus, is the double truss—In this instrument, two trusses adapted to opposite sides of the same body, selected from among those intended for

inguinal, ventro-inguinal, or femoral hernia, are associated together so as to act in complicated cases with the same certainty and ease which is obtained in simple cases by means of simple trusses.

The peculiarity of this instrument consists in the method of attaching the pelvic straps and spring-covers so as to make the two trusses act as one instrument, while they are allowed to adapt themselves to the peculiar complication existing in any individual case. This method is as follows.—The spring-cover of each of the two springs stops at that part of the spring which corresponds to the middle of the back, leaving the remainder of the posterior part of the spring naked. The said naked portions are then made to glide regularly upon each other, one lying posteriorly, and the other anteriorly, and in this manner, the extremity of each spring is passed into the spring-cover of the opposite side.

The pelvic strap appertaining to the spring that lies anteriorly is firmly attached in its whole width to the corresponding spring-covers, but that appertaining to the spring which lies posteriorly, is secured to the extremity of the corresponding spring-cover by its edges only leaving beneath its base a loop or passage through which the other pelvic strap passes up, and from that spot the route of both straps is superficial on the outside of the spring-covers, except that each strap is secured in its proper position, by being made to pass through several leather loops on the outside of the spring-cover, such as were noticed in the description of the inguinal truss. This instrument requires two perineal straps, and it has a back-pad attached in the ordinary manner. It is capable of being adapted to patients of various sizes, and affected with all the varieties of double hernia.

The sixth part of the apparatus is the umbilical band, intended for very young children. It is formed in the following manner: A band of gum elastic webbing eighteen inches long and two inches broad, is intended to surround the body of an infant. To the center of this band is secured a small umbilical block, and block-rider, the former being placed on the inner, and the latter on the outer side of the band. Two flat-headed screws attach the block-rider to the block, passing through the band, and into the wood. Behind the band terminates at one end in a soft leather strap with three longitudinal rows of eyelet holes, and is armed on the outer side, near the other end, with a triple-tongued buckle, beneath which is a small buckskin pad, to protect the skin of the child from the direct action of the buckle. In the application of this instrument, the block at the center of the band is applied directly over the umbilicus, and the extremities, carried horizontally round the body, are made to overlap each other at the middle of the back, where they are secured by means of the strap and buckle already described.

Besides the foregoing parts of the apparatus, I have invented, made, and now employ a complete set of similar trusses, covered with india rubber-cloth instead of leather, to protect the metallic parts of the apparatus from the moisture in bathing, or from other causes, and these are entitled bathing trusses.

Notwithstanding that I have in the preceding specification set forth by an exact description the instruments as used by me in the cure of the different kinds of hernia, and have given particular admeasurements for springs, blocks or pads, &c., still I wish to be particularly understood that in all cases of hernia, I vary my treatment in relation to the size of instruments, agreeably to the age of the patient and state of the case, governing myself according to existing circumstances, but at all times adhering to the principles set forth in this specification.

In my apparatus and the several instruments of which it is composed the pads or blocks are adapted to the several varieties of hernia, with due and strict attention to the anatomical and physiological peculiarities of the parts interested in the several varieties of the disease; the said pads or blocks being so constructed and attached as to secure the permanent and certain retention of the bowel in all cases which admit of retention by mechanical means, thus allowing the powers of nature if possible to close the orifice by which the bowel escapes from the cavity of the abdomen in this disease, which result is not obtained with certainty by any other instruments previously invented.

I claim—

1. The peculiar mode of attachment for the block, as given in the description of each instrument, including the block-slide adjustment of the inguinal, and ventro-inguinal trusses and the block-slide adjustment.

2. I claim also the new method of employing dorsal pads in all the trusses, by which method the said pads are made movable so as to slide to any distance which may be required.

3. I claim the peculiar double truss, herein described, namely the employment of two springs sliding upon each other, with pads or blocks attached, and combined in such a manner as to act like one entire instrument by whatever arrangement of the springs and straps such a result may be attained.

4. I claim the several improvements which have been described and specifically claimed, independently of the material of which they may be constructed, and what-

ever alterations in form or size they may hereafter undergo so that similar effects are produced by analogous means.

For a further illustration of the peculiarities and construction and form upon which the operation of the foregoing instruments are dependent, I refer to the drawings with written references thereto deposited by me in the Patent Office in compliance with the requirements of the patent law.

HEBER CHASE, M. D.

Witnesses:

C. W. W. WHARTON,

JOHN DEWDNEY.